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In the Claims:

Please amend claims 1-8 as follows:

1. (Currently amended) A linear actuator, comprising:

a stator having a coil wound around an end portion of a rail-shaped magnetic substance in said stator; and

a mover which faces a rail-shaped portion of said stator, ~~relatively moves along the~~ rail-shaped portion, and includes a magnetic substance, said stator coil being longer than said mover, said mover not having a coil, wherein

an electric current flows through the coil to ~~centrally produce~~ magnetic flux on the rail-shaped portion facing said stator, thereby obtaining magnetic thrust of said mover.

2. (Currently amended) A first component which is formed by rail-shaped

magnetic pieces in substantially parallel rows, each of which has magnetic piece having a coil wound around at an end portion of longitudinal direction of the piece, each coil making and makes a periodicalperiodic magnetic change along the longitudinal direction of the piece by flowingin response to an electric current flowing through the coil; and

a second component facing said first component at predetermined spacing, and having N and S magnetic poles along the longitudinal direction of the plurality of pieces, said first component coil being longer than said second component, and said second component not having a coil, wherein

said second component can be moved relative to said first component along the

longitudinal direction of said first component by differentiating distribution of magnetic changes of the plurality of pieces of said first components on a surface facing said second component.

3. (Currently amended) A linear actuator, comprising:

a stator having K (K indicates ~~and~~an integer equal to or larger than 2) stator piece pairs, ~~and each stator piece pair is~~being composed of two stator pieces which are parallel-placed rail-shaped magnetic substances having a plurality of projections arranged at regular spacing T in a longitudinal direction, a bridge made ~~by~~of a magnetic substance connecting one end of each stator piece together magnetically, and a coil wound around the bridge to magnetize the two stator pieces for opposite polarities; and

a mover having K mover piece pairs, ~~and each mover piece pair is~~being composed of magnetically-connected two mover pieces which are faced at predetermined spacing to corresponding said two stator pieces ~~one to one~~ which comprise said stator piece pair, ~~and each mover piece has~~having a magnetic core and magnetic poles formed on a portion of the magnetic core facing ~~to~~ said stator piece and arranged such that all or part of the N poles face ~~to~~ projections of the stator piece when all or part of the S poles face ~~to~~ slots between the projections, said stator coil being longer than said mover, said mover not having a coil, wherein:

in each of said K sets of one stator piece pair and one mover piece pair facing ~~to~~ each other,

two sets of a stator piece and a mover piece facing ~~to~~ each other are arranged such that positions of the magnetic poles on the mover piece facing ~~to~~ the projections on the stator piece in one set are shifted relative to those of the other set by T/2 in the longitudinal direction of said stator;

with the K sets of one stator piece pair and one mover piece pair, the positions of the magnetic poles on the mover pieces to the projections on the stator pieces are sequentially shifted relative to each other at regular spacing along the longitudinal direction of said stator; and

thrust along the longitudinal direction of said stator can be produced on said mover by sequentially applying an electric current to a coil of each stator piece pair in a time series.

4. (Currently amended) The linear actuator according to claim 3, wherein:
said stator piece pair is formed such that the projections of its two stator pieces face to each other; and
said mover piece pair is provided between the two stator pieces in the stator piece pair corresponding to the mover piece pair.

5. (Currently amended) A linear actuator, comprising:
a stator having M (M indicates an integer equal to or larger than 3) stator pieces, each of which is formed by a rail-shaped magnetic substance having a plurality of projections arranged at regular spacing in a longitudinal direction, and which are arranged parallel to each other, with one end of the stator pieces magnetically connected, and with a coil situated to each of the stator pieces to magnetize the projections; and

a mover having M mover pieces, which are ~~face~~spaced at predetermined spacing corresponding to said stator pieces ~~one to one~~, and each mover piece ~~has~~having a magnetic core, which is magnetically-connected to the cores of adjacent mover pieces, and magnetic poles formed on a portion of the magnetic core facing ~~to~~ said stator piece and arranged such that all or part of the

N poles face ~~to~~ projections of the stator piece when all or part of the S poles face ~~to~~ slots between the projections, said stator coil being longer than said mover, said mover not having a coil, wherein:

with M sets of one stator piece and one mover piece facing ~~to~~ each other, the positions of the magnetic poles on the mover pieces ~~to~~ and the projections on the stator pieces are sequentially shifted relative to each other at regular spacing along the longitudinal direction of said stator; and

thrust along the longitudinal direction of said stator can be produced on said mover by sequentially applying an electric current to a coil of each stator piece in a time series.

6. (Currently amended) The linear actuator according to claim 3, wherein said mover piece is configured by closely coupling a core, said core being made of a strong magnetic ~~substance~~ substance, with a permanent magnet as a magnetic pole.

7. (Currently amended) The linear actuator according to claim 4, wherein said mover piece is configured by closely coupling a core, said core being made of a strong magnetic ~~substance~~ substance, with a permanent magnet as a magnetic pole.

8. (Currently amended) The linear actuator according to claim 5, wherein said mover piece is configured by closely coupling a core, said core being made of a strong magnetic ~~substance~~ substance, with a permanent magnet as a magnetic pole.

9. (Original) The linear actuator according to claim 3, wherein said bridge to connect the stator pieces magnetically and said coils are also provided at the other end of the stator.

10. (Original) The linear actuator according to claim 4, wherein said bridge to connect the stator pieces magnetically and said coils are also provided at the other end of the stator.

11. (Original) The linear actuator according to claim 5, wherein said bridge to connect the stator pieces magnetically and said coils are also provided at the other end of the stator.

12. (Original) The linear actuator according to claim 6, wherein said bridge to connect the stator pieces magnetically and said coils are also provided at the other end of the stator.

13. (Original) The linear actuator according to claim 3, wherein a sensor coil is wound in a slot between the projections of said stator pieces, and an absolute position of said mover can be detected based on a change of inductance of the sensor coil made when said mover passes over the sensor coil.

14. (Original) The linear actuator according to claim 4, wherein a sensor coil is wound in a slot between the projections of said stator pieces, and an absolute position of said mover can be detected based on a change of inductance of the sensor coil made when said mover passes over the sensor coil.

15. (Original) The linear actuator according to claim 5, wherein a sensor coil is wound in a slot between the projections of said stator pieces, and an absolute position of said

mover can be detected based on a change of inductance of the sensor coil made when said mover passes over the sensor coil.

16. (Original) The linear actuator according to claim 6, wherein a sensor coil is wound in a slot between the projections of said stator pieces, and an absolute position of said mover can be detected based on a change of inductance of the sensor coil made when said mover passes over the sensor coil.

17. (Original) The linear actuator according to claim 9, wherein a sensor coil is wound in a slot between the projections of said stator pieces, and an absolute position of said mover can be detected based on a change of inductance of the sensor coil made when said mover passes over the sensor coil.

18. (Original) The linear actuator according to claim 13, wherein said sensor coil is configured by a part of a coil for driving said mover wound around the bridge of said stator.

19. (Original) The linear actuator according to claim 14, wherein said sensor coil is configured by a part of a coil for driving said mover wound around the bridge of said stator.

20. (Original) The linear actuator according to claim 15, wherein said sensor coil is configured by a part of a coil for driving said mover wound around the bridge of said stator.

21. (Original) The linear actuator according to claim 16, wherein said sensor coil is configured by a part of a coil for driving said mover wound around the bridge of said stator.

22. (Original) The linear actuator according to claim 17, wherein said sensor coil is configured by a part of a coil for driving said mover wound around the bridge of said stator.